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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,765	08/18/2003	Andrew B. Hastings	1376.725US1	3874

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MINNEAPOLIS, MN 55402

EXAMINER

MCLEAN MAYO, KIMBERLY N

ART UNIT	PAPER NUMBER
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2187

MAIL DATE	DELIVERY MODE
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07/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/643,765	HASTINGS, ANDREW B.	
	Examiner	Art Unit	
	Kimberly N. McLean-Mayo	2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22, 25-27 and 30-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5, 9, 16 and 37-40 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6-8, 10-13, 17, 18, 20-22, 25-27, 30-36 and 41 is/are rejected.
- 7) ☐ Claim(s) 3, 4, 14, 15, 19 and 42-44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Application/Control Number: 10/643,765

Page 2

Art Unit: 2187

DETAILED ACTION

1. The enclosed detailed action is in response to the Amendment submitted on April 25, 2007.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 6-8, 10-13, 17-18, 20-22, 25-27, 30-36 and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Kolichtchak (PGPUB: US 2003/0014667).

Regarding claims 1-2, 10-13, 21-22, 27, 32-35 and 41, Kolichtchak discloses a system comprising a memory (Figure 1, Reference 110); a plurality of pages held in the memory (section 0009); an instruction translation lookaside buffer (ITLB) (Figure 1, Reference 190); a first data translation lookaside buffer (DTLB) (Figure 1, Reference 180); a translation lookaside buffer [inherent; when a miss occurs in the ITLB, a miss handler [software/code] retrieves the entry from the page table and when a miss occurs in the DTLB a miss handler retrieves the missed page entry from the page table]; an executable/non-executable (x) indicator [user/supervisory mode] associated with each page in memory (Figure 2, bit 2; section 0011) wherein the TLB miss handler sets the x-indicator for a particular page to indicate non-executable when that page is accessed in a mode that allows writing to that page, and wherein the

Application/Control Number: 10/643,765

Page 3

Art Unit: 2187

ITLB refuses to allow instructions from a page with an associated x-indicator of non-executable to be loaded [section 0014].

Regarding claims 6, 8, 18, and 20, Kolichtchak discloses a write bit associated with each page in memory that indicates the respective page is writable (Figure 2, bit 1; section 0011)

Regarding claims 7 and 17, Kolichtchak discloses a page table used to translate a virtual address to a real address, wherein the x-indicator for each page is held in the page table entry associated with that page (Figure 2, bit 2; section 0011).

Regarding claims 25-26, 30-31 and 36, Kolichtchak discloses translating the address for the data access also including setting the non-executable indication for a page holding the data access address on if a write indication is set for that page (Figure 3, Reference 310).

Allowable Subject Matter

4. Claims 5, 9, 16 and 37-40 are allowed.
5. Claims 3-4, 14-15, 19 and 42-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Application/Control Number: 10/643,765

Page 4

Art Unit: 2187

Response to Arguments

6. Applicant's arguments with respect to claims 3-4, 14-15 and 42-44 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's remaining arguments were presented in the previous response; the Examiner has reiterated the following points below.

The Applicant provides arguments, which are incommensurate with the claims. For example, the Applicant argues that Kolichtchak's use of the U/S flag is unconventional, etc.

The Applicant argues that Kolichtchak's U/S flag is not an execute/non-execute bit since if the U/S flag is marked supervisor and the processor in supervisor mode, it does not cause the ITLB to refuse to allow instructions to be loaded or executed. The Examiner disagrees, claims are examined given the broadest reasonable interpretation. In this case, Kolichtchak teaches that when a page is non-executable the privilege is set to supervisor mode which prevents execution of the page (loading, etc.) by users having a *user privilege* only. Hence, Kolichtchak refuses access to those pages by users having only a *user privilege* (refer to section 0011; lines 18-21; section 0014).

Regarding claims 7 and 17, the U/S flag is the x-indicator.

Application/Control Number: 10/643,765

Page 5

Art Unit: 2187

Regarding Applicant's arguments with respect to claims 21 and 27, the Examiner disagrees.

Data address translation occurs when the system accesses the address and corresponding entry in the page table is accessed to retrieve the physical address. When the page table entry is accessed, the accessed entry is written into the DTLB where the non-executable indication is set by writing the value of indicator in the DTLB.

Additionally, the Examiner has cited equivalent structure, material or acts as provided above for Applicant's means-plus-function claims.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly N. McLean-Mayo whose telephone number is 571-272-4194. The examiner can normally be reached on Monday-Friday (10-6:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 571-272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

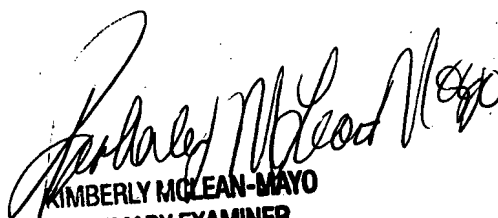
Application/Control Number: 10/643,765

Page 6

Art Unit: 2187

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KNM



KIMBERLY McLEAN-MAYO
PRIMARY EXAMINER

Kimberly N. McLean-Mayo
Primary Examiner
Art Unit 2187

July 9, 2007